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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/319,258	06/11/99	ASAI	M P17856

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MM92/0424

EXAMINER

ALCALA, J.

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 04/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/319,258

Applicant(s)

ASAI ET AL.

Examiner

Jose H Alcalá

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

The applicant's arguments filed on 2/20/01 are deemed persuasive, and the Restriction Requirement has been withdrawn from the case. The following is a first office action, including rejections based on art.

Oath/Declaration

1. It is noted that the applicant is claiming priority over PCT Application PCT/JP97/04684 filed on 12/18/1998. However, the corresponding PCT application has a filing date of 12/18/1997. It is advised that the declaration be corrected.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Objections

4. Claim 16 is objected to because of the following informalities: in line 2, delete "claims" and add "claim". Appropriate correction is required.

5. Claims 19-21 is objected to because of the following informalities: in line 1, delete "anyone of". Appropriate correction is required.
6. Claim 21 is objected to because of the following informalities: in line 2, add "as" between "packaged" and "a". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. Claims 15-16,19-21,30-32,35-37,40-41 provide for the use of a conductor layer as an alignment mark, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 15-16,19-21,30-32,35-37,40-41 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. Claims 1-5,13-26,28-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Uno et al. (US Patent No. 5827604).

Uno teaches a printed circuit board (1) with a conductor circuit or layer (combination of 3 and 10) comprised of a film (3) and another film (10) and a roughened layer (9) that is a plated layer of copper-nickel-phosphorus alloy (column 5, line 23) and the surface is covered with a metal layer having an ionization tendency of more than copper but less than titanium or a noble metal (column 5, line 33-34).

With regards to claims 1-2,14 and 17, the limitations that the films are "electroless plated" and "electrolytic plated" are process limitations in a product claim.

With regards to claim 1 the limitation in lines 6-7 that a roughened layer: "is formed on at least a part of the surface of the conductor circuit" is a process limitation in a product claim.

With regards to claims 3 and 22, the limitation in lines 2-3 that the roughened layer: "is formed on at least a part of the surface inclusive of a side surface of the conductor circuit" is a process limitation in a product claim.

With regards to claim 4 and 23, the limitation in lines 2-3 that the roughened layer: "is formed on at least a part of the side face of the conductor circuit" is a process limitation in a product claim.

With regards to claim 18 the limitation in lines 2-3 that a roughened layer: "is formed on at least a part of the surface of the conductor layer" is a process limitation in a product claim.

A "product by process" claim is directed to the product per se, no matter how actually made, In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

10. Claims 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Uno et al. (US Patent No. 5827604).

Uno teaches a multilayer printed circuit board (1), comprising a substrate (2) provided with an underlayer conductor circuit (3), an interlaminar insulating layer (4) and an upper layer conductor circuit (6), and a viahole (7) connecting both the conductors circuit to each other. In addition the viahole is comprised of a film (3) and another film (10) and a roughened layer (9) with a roughened surface.

With regards to claims 9 the limitation that the upper layer conductor circuit "is formed on the interlaminar insulating layer", the limitations that the roughened layer with

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a roughened surface "is formed by etching, treatment, polishing treatment, or redox treatment", and the limitation of "formed on at least a part of the surface of the underlayer conductor circuit connected to the viahole", are process limitations in a product claim.

With regards to claims 10 the limitation in line 2 that the roughened layer: "is formed by plating of copper-nickel-phosphorus alloy" is a process limitation in a product claim.

A "product by process" claim is directed to the product per se, no matter how actually made, In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

11. Claims 6-8, 11-12, 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Uno et al. (US Patent No. 5827604).

The method of producing the claimed multilayer printed circuit board is rejected using the same reasoning as applied to reject the product claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Frankeny et al. and Taylor, each discloses a multilayer printed circuit board with roughened conductor layers to make a printed circuit board stackable to another. Isoda et al., Urasaki et al., Russel et al., and Gotoh et al. each discloses a printed wiring board with the use of roughened layers to improve adhesion between the layers. Hashimoto discloses the use of copper positioning as an alignment mark.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached from Monday to Friday.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

15. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA
April 20, 2001

